Fig. 1a

WINEMS unit

10

Control software

12

Digital mapping software

22

Video system

14

Satellite receiver

16

GPS receiver

18

Weather radio

20

Video system output showing the system when an AMBER alert (114) information is issued for the devices current location.
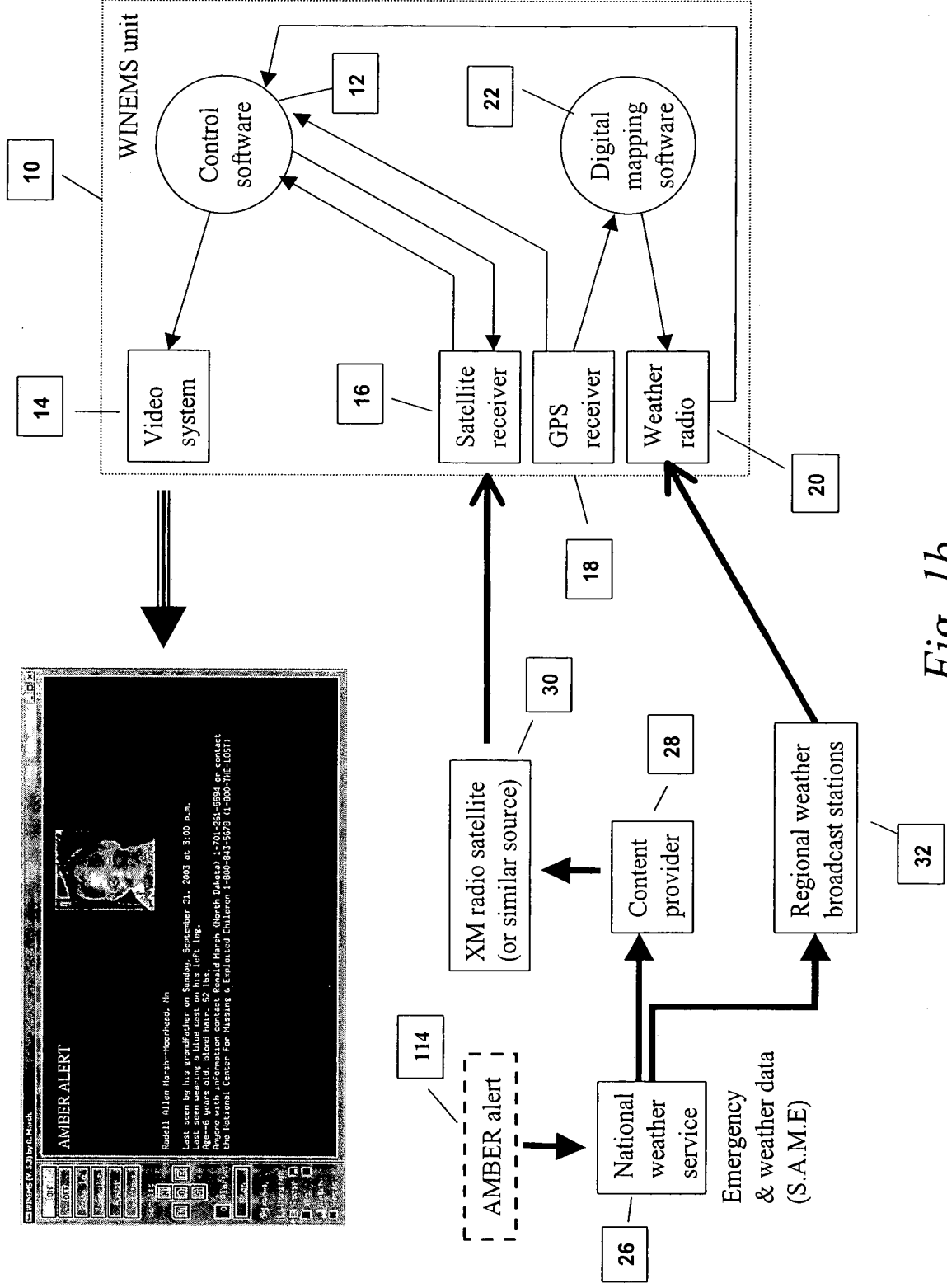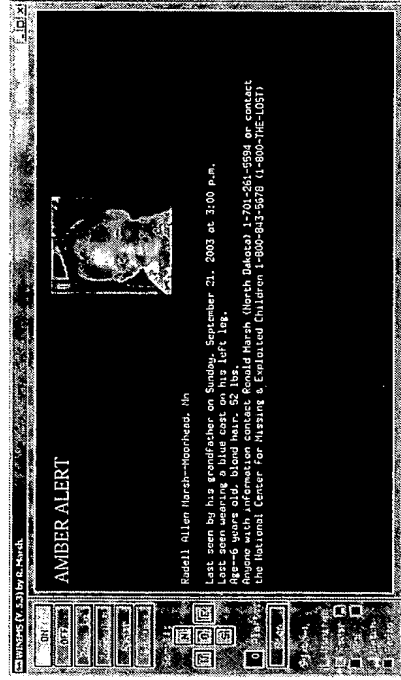
AMBER ALERT
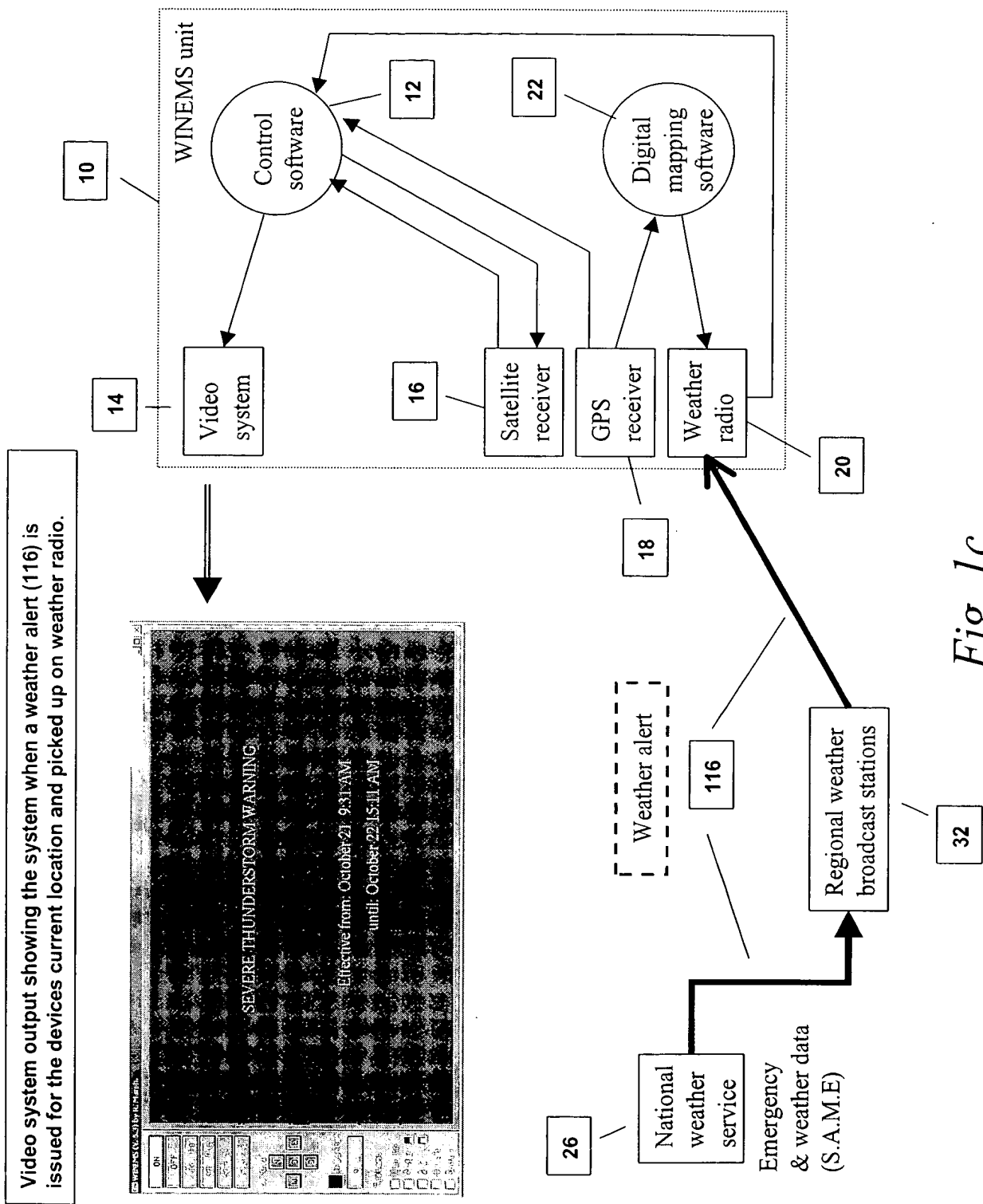
Rodell Allen Harsh—Moorhead, Mn

Last seen by his grandfather on Sunday, September 21, 2003 at 3:00 p.m.
Last seen wearing a blue shirt on his left leg.
Age: 5 years old, blond hair, 52 lbs
Anyone with information contact Ronald Harsh (North Dakota) 1-701-261-9594 or contact
the National Center for Missing & Exploited Children 1-800-843-5678 (1-800-THE-LOST)

XM radio satellite (or similar source)

30

Content provider

28

Regional weather broadcast stations

32

National weather service

26

AMBER alert

114

Emergency & weather data (S.A.M.E)

*Fig. 1b*

BEST AVAILABLE COPY

Video system output showing the system when a weather alert (116) is
issued for the devices current location and picked up on weather radio.

WINEMS unit

10

Control
software

12

Video
system

14

Satellite
receiver

16

GPS
receiver

18

Weather
radio

20

Digital
mapping
software

22

SEVERE THUNDERSTORM WARNING

Effective from: October 21: 9:31 AM -
until: October 22 15:11 AM

Weather alert

116

National
weather
service

26

Emergency
& weather data
(S.A.M.E)

Regional weather
broadcast stations

32

Fig. 1c

10

WINEMS unit

50 — Audio system

Audio data

Software to control audio system — 40

52 — User interface

Weather audio message — 78

Control software — 12

14 — Video display

Image data

Software to generate data display — 42

Emergency data — 76

Radar acquisition message — 74

56 — Radar data

16 — Satellite Radio receiver

54

Radar data

60 — Radar data

Software to extract local weather radar data — 44

Database — 48

58 — Music

18 — GPS receiver

62

Position data — 64

Position data

Software to convert position data — 46

70 — Emergency data

20 — Weather Radio receiver

68

66 — Code

72 — Non-emergency data

38

*Fig. 2a*

Schematic for FIPS code to county mapping algorithm

Best-fit rectangles (120) (dashed lines).

Device location

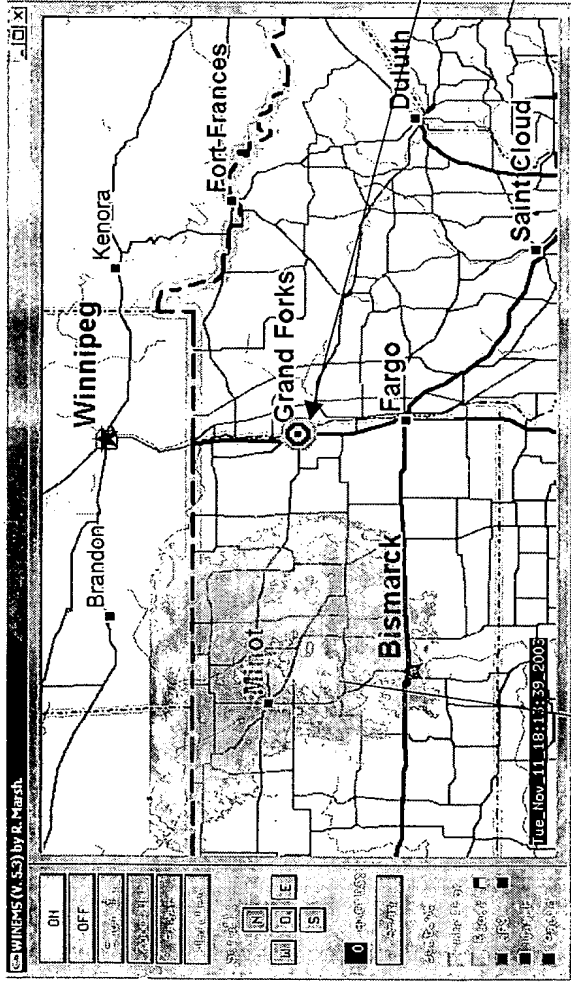Radius (122) surrounding
Location of weather radio
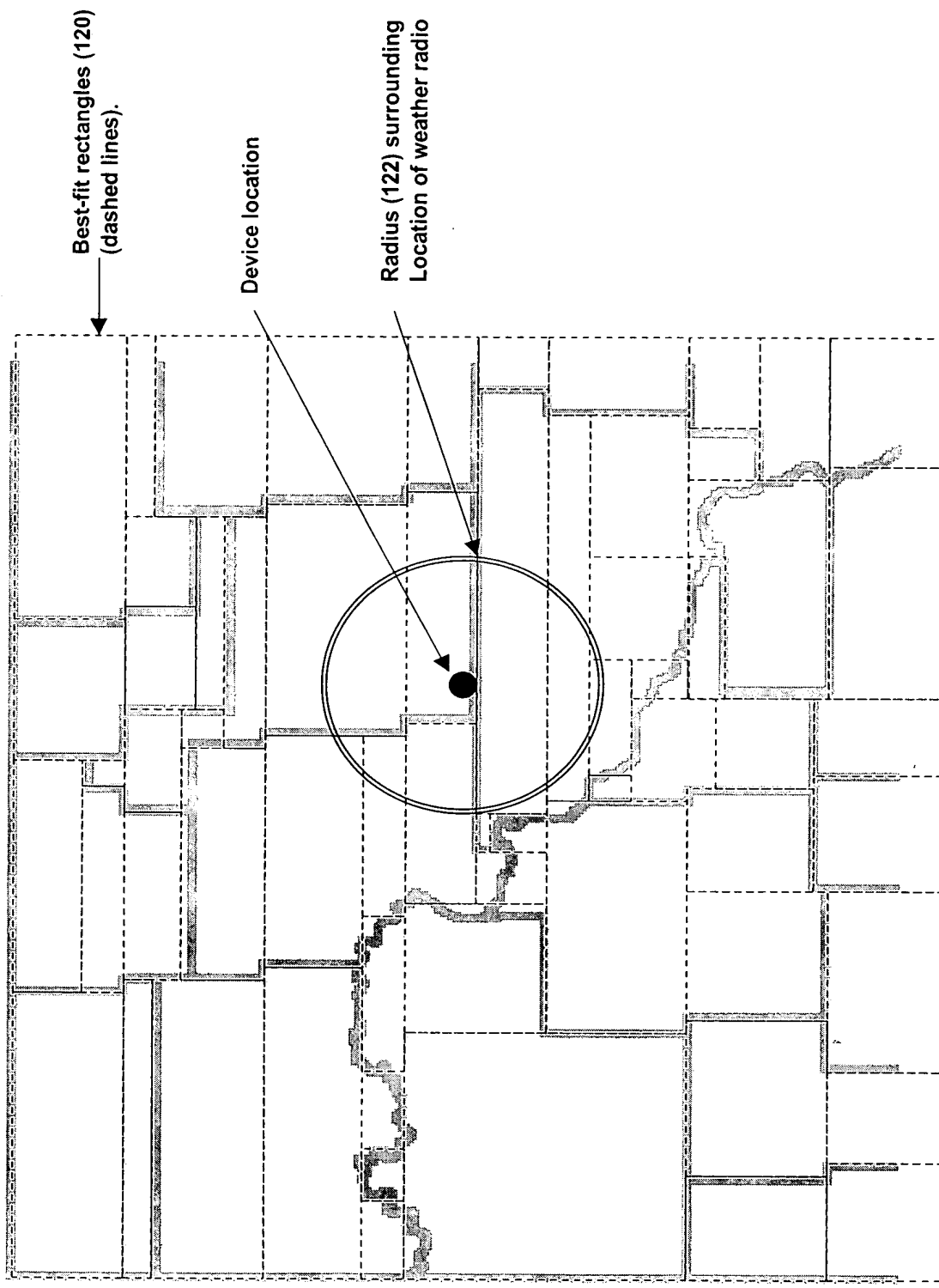
*Fig. 2b*

Graphical User Interface (86) showing the digital map (118) with the Doppler weather radar image (116) overlay and the icon for the location of the device.

Icons for the device location change given the device's direction of travel. These icons are shown below:

Device location

118    Digital map

Radar image    116

88    GPS antenna

FIPS radio

82

86

Phone system    90
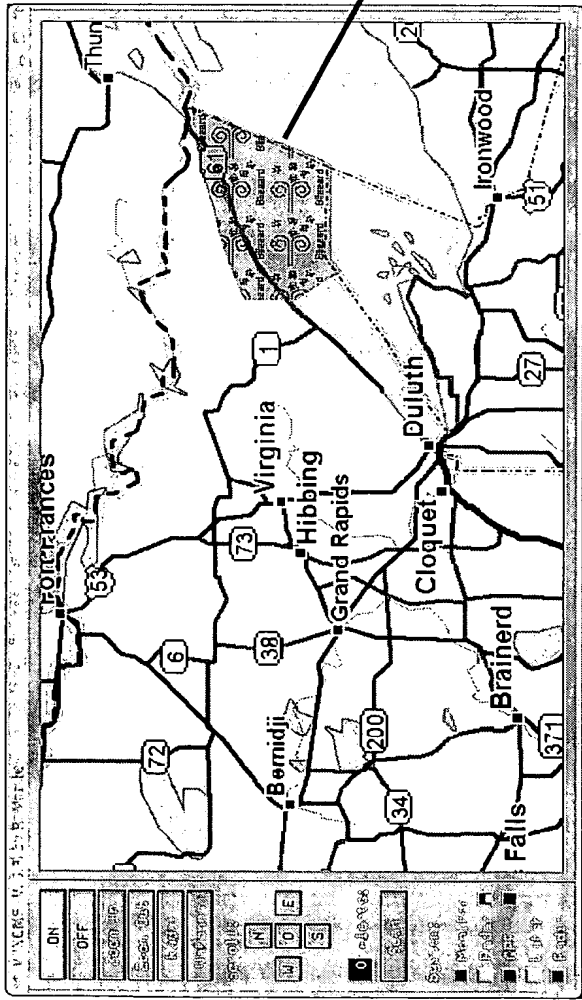
Phone

92

Laptop computer
W/Digital mapping software

84

Server    94

Land-based phone system

96

*Fig. 3a*

Graphical User Interface showing the digital map with the emergency alert icon overlay.

Emergency alert icon (funnel cloud) 124

Phone system 90

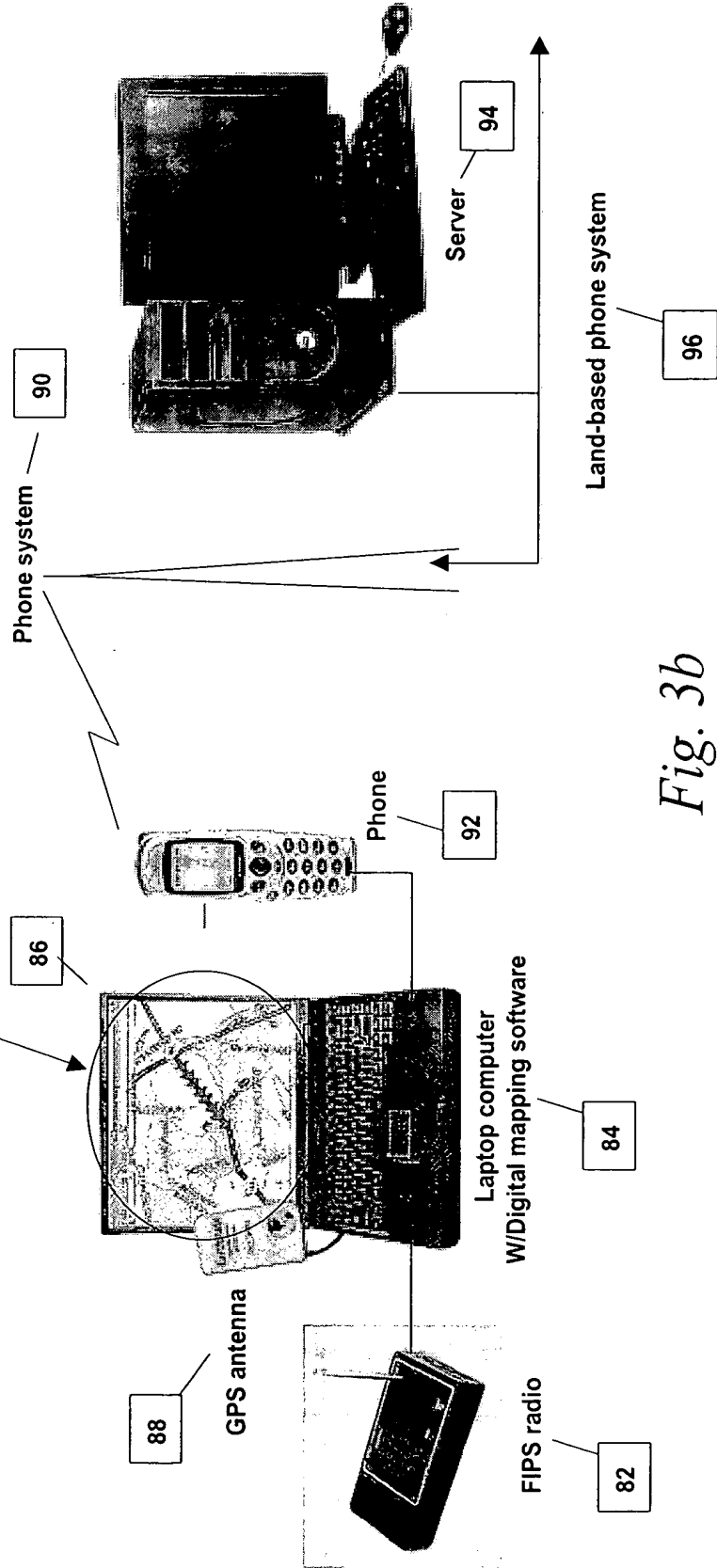Server 94

Land-based phone system

96

Phone 92

86

GPS antenna 88

Laptop computer W/Digital mapping software 84

FIPS radio 82

*Fig. 3b*